

results of a required sample of sulfur content, GCV or density is missing or invalid in the current calendar year. The substitute data value(s) shall be used until the next valid

sample for the missing parameter(s) is obtained. Note that only actual sample results shall be used to determine the "highest value from the previous year" when

that reporting option is used; missing data values shall not be used in the determination.

TABLE D-6.—MISSING DATA SUBSTITUTION PROCEDURES FOR SULFUR, DENSITY, AND GROSS CALORIFIC VALUE DATA

Parameter	Missing data substitution maximum potential value
Oil Sulfur Content	3.5 percent for residual oil, or 1.0 percent for diesel fuel.
Oil Density	8.5 lb/gal for residual oil, or 7.4 lb/gal for diesel fuel.
Oil GCV	19,500 Btu/lb for residual oil, or 20,000 Btu/lb for diesel fuel.
Gas Sulfur Content	0.3 gr/100 scf for pipeline natural gas, or 1.0 gr/100 scf for natural gas, or Twice the highest total sulfur content value recorded in the previous 30 days when sampling gaseous fuel daily or hourly.
Gas GCV/Heat Content	1100 Btu/scf for pipeline natural gas, natural gas or landfill gas, or 1500 for butane or refinery gas. 2100 Btu/scf for propane or any other gaseous fuel.

2.4.2 Whenever data are missing from any fuel flowmeter that is part of an excepted monitoring system under appendix D or E to this part, where the fuel flowmeter data are required to determine the amount of fuel combusted by the unit, use the procedures in sections 2.4.2.2 and 2.4.2.3 of this appendix to account for the flow rate of fuel combusted at the unit for each hour during the missing data period. In addition, a fuel flowmeter used for measuring fuel combusted by a peaking unit may use the simplified fuel flow missing data procedure in section 2.4.2.1 of this appendix.

2.4.2.1 Simplified Fuel Flow Missing Data for Peaking Units

If no fuel flow rate data are available for a fuel flowmeter system installed on a peaking unit (as defined in § 72.2 of this chapter), then substitute for each hour of missing data using the maximum potential fuel flow rate. The maximum potential fuel flow rate is the lesser of the following:

(a) The maximum fuel flow rate the unit is capable of combusting or (b) the maximum fuel flow rate that the flowmeter can measure (i.e., upper range value of flowmeter leading to a unit).

2.4.2.2 * * *

2.4.2.3 For hours where two or more fuels are combusted, substitute the maximum hourly fuel flow rate measured and recorded by the flowmeter (or flowmeters, where fuel is recirculated) for the fuel for which data are missing at the corresponding load range recorded for each missing hour during the previous 720 hours when the unit combusted that fuel with any other fuel. For hours where no previous recorded fuel flow rate data are available for that fuel during the missing data period, calculate and substitute the maximum potential flow rate of that fuel for the unit as defined in section 2.4.2.2 of this appendix.

2.4.3 * * *

66. Appendix D to part 75 is further amended by:

- Revising sections 3 through 3.2.1 and 3.2.3;
- Removing section 3.2.4;
- Revising sections 3.3 through 3.3.3;
- Redesignating section 3.4 as 3.6 and revising the first sentence; and
- Adding new sections 3.4 through 3.4.3 and sections 3.5 through 3.5.6 to read as follows:

3. Calculations

Calculate hourly SO₂ mass emission rate from combustion of oil fuel using the procedures in section 3.1 of this appendix. Calculate hourly SO₂ mass emission rate from combustion of gaseous fuel using the procedures in section 3.3 of this appendix. (Note: the SO₂ mass emission rates in sections 3.1 and 3.3 are calculated such that the rate, when multiplied by unit operating time, yields the hourly SO₂ mass emissions for a particular fuel for the unit.) Calculate hourly heat input rate for both oil and gaseous fuels using the procedures in section 3.4 of this appendix. Calculate total SO₂ mass emissions and heat input for each hour, each quarter and the year to date using the procedures under section 3.5 of this appendix. Where an oil flowmeter records volumetric flow rate, use the calculation procedures in section 3.2 of this appendix to calculate the mass flow rate of oil.

3.1 SO₂ Mass Emission Rate Calculation for Oil

3.1.1 Use Equation D-2 to calculate SO₂ mass emission rate per hour (lb/hr):

$$\text{SO}_{2\text{-rate-oil}} = 2.0 \times \text{OIL}_{\text{rate}} \times \frac{\%S_{\text{oil}}}{100.0} \quad (\text{Eq. D-2})$$

Where:

SO_{2rate-oil} = Hourly mass emission rate of SO₂ emitted from combustion of oil, lb/hr.

OIL_{rate} = Mass rate of oil consumed per hr during combustion, lb/hr.

%S_{oil} = Percentage of sulfur by weight measured in the sample.

2.0 = Ratio of lb SO₂/lb S.

3.1.2 Record the SO₂ mass emission rate from oil for each hour that oil is combusted.

3.2 Mass Flow Rate Calculation for Volumetric Oil Flowmeters

3.2.1 Where the oil flowmeter records volumetric flow rate rather than mass flow rate, calculate and record the oil mass flow rate for each hourly period using hourly oil

flow rate measurements and the density or specific gravity of the oil sample.

* * * * *

3.2.3 Where density of the oil is determined by the applicable ASTM procedures from section 2.2.6 of this appendix, use Equation D-3 to calculate the rate of the mass of oil consumed (in lb/hr):

$$\text{OIL}_{\text{rate}} = V_{\text{oil-rate}} \times D_{\text{oil}} \quad (\text{Eq. D-3})$$

Where:

OIL_{rate} = Mass rate of oil consumed per hr, lb/hr.

V_{oil-rate} = Volume rate of oil consumed per hr, measured in scf/hr, gal/hr, barrels/hr, or m³/hr.

D_{oil} = Density of oil, measured in lb/scf, lb/gal, lb/barrel, or lb/m³.

3.3 SO₂ Mass Emission Rate Calculation for Gaseous Fuels

3.3.1 Use Equation D-4 to calculate the SO₂ mass emission rate when using the optional gas sampling and analysis procedures in sections 2.3.1 and 2.3.2 of this appendix, or the required gas sampling and analysis procedures in section 2.3.3 of this appendix. Total sulfur content of a fuel must be determined using the procedures of 2.3.3.1.2 of this appendix:

$$\text{SO}_2_{\text{rate-gas}} = \left(\frac{2}{7000} \right) \times \text{GAS}_{\text{rate}} \times S_{\text{gas}} \quad (\text{Eq. D-4})$$

Where:

$\text{SO}_{2\text{rate-gas}}$ = Hourly mass rate of SO_2 emitted due to combustion of gaseous fuel, lb/hr.

GAS_{rate} = Hourly metered flow rate of gaseous fuel combusted, 100 scf/hr.

S_{gas} = Sulfur content of gaseous fuel, in grain/100 scf.

2.0 = Ratio of lb SO_2 /lb S.

7000 = Conversion of grains/100 scf to lb/100 scf.

3.3.2 Use Equation D-5 to calculate the SO_2 mass emission rate when using a default emission rate from section 2.3.1.1 or 2.3.2.1.1 of this appendix:

$$\text{SO}_2_{\text{rate}} = \text{ER} \times \text{HI}_{\text{rate}} \quad (\text{Eq. D-5})$$

where:

$\text{SO}_{2\text{rate}}$ = Hourly mass emission rate of SO_2 from combustion of a gaseous fuel, lb/hr.

ER = SO_2 emission rate from section 2.3.1.1 or 2.3.2.1.1, of this appendix, lb/mmBtu.

HI_{rate} = Hourly heat input rate of a gaseous fuel, calculated using procedures in section 3.4.1 of this appendix, in mmBtu/hr.

3.3.3 Record the SO_2 mass emission rate for each hour when the unit combusts a gaseous fuel.

3.4 Calculation of Heat Input Rate

3.4.1 Heat Input Rate for Gaseous Fuels

(a) Determine total hourly gas flow or average hourly gas flow rate with a fuel flowmeter in accordance with the requirements of section 2.1 of this appendix and the fuel GCV in accordance with the requirements of section 2.3.4 of this appendix. If necessary perform the 720-hour test under section 2.3.5 to determine the appropriate fuel GCV sampling frequency.

(b) Then, use Equation D-6 to calculate heat input rate from gaseous fuels for each hour.

$$\text{HI}_{\text{rate-gas}} = \frac{\text{GAS}_{\text{rate}} \times \text{GCV}_{\text{gas}}}{10^6} \quad (\text{Eq. D-6})$$

Where:

$\text{HI}_{\text{rate-gas}}$ = Hourly heat input rate from combustion of the gaseous fuel, mmBtu/hr.

GAS_{rate} = Average volumetric flow rate of fuel, for the portion of the hour in which the unit operated, 100 scf/hr.

GCV_{gas} = Gross calorific value of gaseous fuel, Btu/hr.

10^6 = Conversion of Btu to mmBtu.

(c) Note that when fuel flow is measured on an hourly totalized basis (e.g. a fuel flowmeter reports totalized fuel flow for each hour), before Equation D-6 can be used, the total hourly fuel usage must be converted from units of 100 scf to units of 100 scf/hr using Equation D-7:

$$\text{GAS}_{\text{rate}} = \frac{\text{GAS}_{\text{unit}}}{t} \quad (\text{Eq. D-7})$$

Where:

GAS_{rate} = Average volumetric flow rate of fuel for the portion of the hour in which the unit operated, 100 scf/hr.

GAS_{unit} = Total fuel combusted during the hour, 100 scf.

t = Unit operating time, hour or fraction of an hour (in equal increments that can range from one hundredth to one quarter of an hour, at the option of the owner or operator).

3.4.2 Heat Input Rate From the Combustion of Oil

(a) Determine total hourly oil flow or average hourly oil flow rate with a fuel flowmeter, in accordance with the requirements of section 2.1 of this appendix. Determine oil GCV according to the requirements of section 2.2 of this appendix.

Then, use Equation D-8 to calculate hourly heat input rate from oil for each hour:

$$\text{HI}_{\text{rate-oil}} = \text{OIL}_{\text{rate}} \frac{\text{GCV}_{\text{oil}}}{10^6} \quad (\text{Eq. D-8})$$

Where:

$\text{HI}_{\text{rate-oil}}$ = Hourly heat input rate from combustion of oil, mmBtu/hr.

OIL_{rate} = Mass rate of oil consumed per hour, as determined using procedures in section 3.2.3 of this appendix, in lb/hr, tons/hr, or kg/hr.

GCV_{oil} = Gross calorific value of oil, Btu/lb, Btu/ton, Btu/kg.

10^6 = Conversion of Btu to mmBtu.

(b) Note that when fuel flow is measured on an hourly totalized basis (e.g., a fuel flowmeter reports totalized fuel flow for each hour), before equation D-8 can be used, the total hourly fuel usage must be converted from units of lb to units of lb/hr, using equation D-9:

$$\text{OIL}_{\text{rate}} = \frac{\text{OIL}_{\text{unit}}}{t} \quad (\text{Eq. D-9})$$

Where:

$$\text{GAS}_{\text{unit}} = \text{GAS}_{\text{meter}} \left(\frac{U_{\text{output}}}{\sum_{\text{all-units}} U_{\text{output}}} \right) \quad (\text{Eq. D-10})$$

Where:

GAS_{unit} = Gas flow apportioned to a unit, 100 scf.

$\text{GAS}_{\text{meter}}$ = Total gas flow through the fuel flowmeter, 100 scf.

U_{output} = Total unit output, MW or klb/hr.

OIL_{rate} = Average fuel flow rate for the portion of the hour which the unit operated in lb/hr.

OIL_{unit} = Total fuel combusted during the hour, lb.

t = Unit operating time, hour or fraction of an hour (in equal increments that can range from one hundredth to one quarter of an hour, at the option of the owner or operator).

3.4.3 Apportioning Heat Input Rate to Multiple Units

(a) Use the procedure in this section to apportion hourly heat input rate to two or more units using a single fuel flowmeter which supplies fuel to the units. (This procedure is not applicable to units calculating NO_x mass emissions using the provisions of subpart H of this part.) The designated representative may also petition the Administrator under § 75.66 to use this apportionment procedure to calculate SO_2 and CO_2 mass emissions.

(b) Determine total hourly fuel flow or flow rate through the fuel flowmeter supplying gas or oil fuel to the units. Convert fuel flow rates to units of 100 scf for gaseous fuels or to lb for oil, using the procedures of this appendix. Apportion the fuel to each unit separately based on hourly output of the unit in MW, or 1000 lb of steam/hr (klb/hr) using Equation D-10 or D-11, as applicable:

$$OIL_{unit} = OIL_{meter} \left(\frac{U_{output}}{\sum_{all-units} U_{output}} \right) \quad (Eq. D-11)$$

Where:

OIL_{unit} = Oil flow apportioned to a unit, lb.

OIL_{meter} = Total oil flow through the fuel flowmeter, lb.

U_{output} = Total unit output in either MW_e or klb/hr.

(c) Use the total apportioned fuel flow calculated from Equation D-10 or D-11 to calculate the hourly unit heat input rate, using Equations D-6 and D-7 (for gas) or Equations D-8 and D-9 (for oil).

3.5 Conversion of Hourly Rates to Hourly, Quarterly and Year to Date Totals

3.5.1 Hourly SO_2 Mass Emissions From the Combustion of All Fuels

Determine the total mass emissions for each hour from the combustion of all fuels using Equation D-12:

$$M_{SO_2-hr} = \sum_{all-fuels} SO_{2-rate-i} t_i \quad (Eq. D-12)$$

Where:

M_{SO_2-hr} = Total mass of SO_2 emissions from all fuels combusted during the hour, lb.

$SO_{2-rate-i}$ = SO_2 mass emission rate for each type of gas or oil fuel combusted during the hour, lb/hr.

t_i = Time each gas or oil fuel was combusted for the hour (fuel usage time), fraction of an hour (in equal increments that can range from one hundredth to one quarter of an hour, at the option of the owner or operator).

3.5.2 Quarterly Total SO_2 Mass Emissions

Sum the hourly SO_2 mass emissions in lb as determined from Equation D-12 for all hours in a quarter using Equation D-13:

$$M_{SO_2-qtr} = \frac{1}{2000} \sum_{all-hours-in-qtr} M_{SO_2-hr} \quad (Eq. D-13)$$

Where:

M_{SO_2-qtr} = Total mass of SO_2 emissions from all fuels combusted during the quarter, tons.

M_{SO_2-hr} = Hourly SO_2 mass emissions determined using Equation D-12, lb.
2000 = Conversion factor from lb to tons.

3.5.3 Year to Date SO_2 Mass Emissions

Calculate and record SO_2 mass emissions in the year to date using Equation D-14:

$$M_{SO_2-YTD} = \sum_{q=1}^{current-quarter} M_{SO_2-qtr} \quad (Eq. D-14)$$

Where:

M_{SO_2-YTD} = Total SO_2 mass emissions for the year to date, tons.

M_{SO_2-qtr} = Total SO_2 mass emissions for the quarter, tons.

3.5.4 Hourly Total Heat Input from the Combustion of all Fuels

Determine the total heat input in mmBtu for each hour from the combustion of all fuels using Equation D-15:

$$HI_{hr} = \sum_{all-fuels} HI_{rate-i} t_i \quad (Eq. D-15)$$

Where:

HI_{hr} = Total heat input from all fuels combusted during the hour, mmBtu.

HI_{rate-i} = Heat input rate for each type of gas or oil combusted during the hour, mmBtu/hr.

t_i = Time each gas or oil fuel was combusted for the hour (fuel usage time), fraction of an hour (in equal increments that can range from one hundredth to one quarter of an hour, at the option of the owner or operator).

3.5.5 Quarterly Heat Input

Sum the hourly heat input values determined from equation D-15 for all hours in a quarter using Equation D-16:

$$HI_{qtr} = \frac{1}{2000} \sum_{all-hours-in-qtr} HI_{hr} \quad (Eq. D-16)$$

Where:

HI_{qtr} = Total heat input from all fuels combusted during the quarter, mmBtu.

HI_{hr} = Hourly heat input determined using Equation D-15, mmBtu.

3.5.6 Year-to-Date Heat Input

Calculate and record the total heat input in the year to date using Equation D-17.

$$HI_{YTD} = \sum_{q=1}^{current-quarter} HI_{qtr} \quad (Eq. D-17)$$

HI_{YTD} = Total heat input for the year to date, mmBtu.

HI_{qtr} = Total heat input for the quarter, mmBtu.

3.6 Records and Reports

Calculate and record quarterly and cumulative SO_2 mass emissions and heat input for each calendar quarter using the procedures and equations of section 3.5 of this appendix. * * *

67. Appendix E to part 75 is amended by revising sections 2.4.2, 2.4.3, 2.4.4, 2.5.4 and 2.5.5 to read as follows:

Appendix E to Part 75—Optional NO_x Emissions Estimation Protocol for Gas-Fired Peaking Units and Oil-Fired Peaking Units

* * * * *

2. Procedure

* * * * *

2.4 Procedures for Determining Hourly NO_x Emission Rate

* * * * *

2.4.2 Use the graph of the baseline correlation results (appropriate for the fuel or fuel combination) to determine the NO_x emissions rate (lb/mmBtu) corresponding to the heat input rate (mmBtu/hr). Input this correlation into the data acquisition and handling system for the unit. Linearly interpolate to 0.1 mmBtu/hr heat input rate and 0.01 lb/mmBtu NO_x (0.001 lb/mmBtu NO_x after April 1, 2000). For each type of fuel, calculate NO_x emission rate using the baseline correlation results from the most recent test with that fuel, beginning with the date and hour of the completion of the most recent test.

2.4.3 To determine the NO_x emission rate for a unit co-firing fuels that has not been tested for that combination of fuels, interpolate between the NO_x emission rate for each fuel as follows. Determine the heat input rate for the hour (in mmBtu/hr) for each fuel and select the corresponding NO_x emission rate for each fuel on the appropriate graph. (When a fuel is combusted for a partial

hour, determine the fuel usage time for each fuel and determine the heat input rate from each fuel as if that fuel were combusted at that rate for the entire hour in order to select the corresponding NO_x emission rate.) Calculate the total heat input to the unit in mmBtu for the hour from all fuel combusted using Equation E-1. Calculate a Btu-weighted average of the emission rates for all fuels using Equation E-2 of this appendix. For each type of fuel, calculate NO_x emission rate using the baseline correlation results from the most recent test with that fuel,

beginning with the date and hour of the completion of the most recent test.

2.4.4 For each hour, record the critical quality assurance parameters, as identified in the monitoring plan, and as required by section 2.3 of this appendix from the date and hour of the completion of the most recent test for each type of fuel.

2.5 Missing Data Procedures

* * * * *

2.5.4 Substitute missing data from a fuel flowmeter using the procedures in section 2.4.2 of appendix D to this part.

2.5.5 Substitute missing data for gross calorific value of fuel using the procedures in sections 2.4.1 of appendix D to this part.

68. Appendix E to part 75 is further amended by revising sections 3.1, 3.3.1, and 3.3.4 to read as follows:

3. Calculations

3.1 Heat Input

Calculate the total heat input by summing the product of heat input rate and fuel usage time of each fuel, as in the following equation:

$$H_T = HI_{\text{fuel1}}t_1 + HI_{\text{fuel2}}t_2 + HI_{\text{fuel3}}t_3 + \dots + HI_{\text{lastfuel}}t_{\text{last}} \quad (\text{Eq. E-1})$$

Where:

H_T = Total heat input of fuel flow or a combination of fuel flows to a unit, mmBtu.

HI_{fuel 1,2,3,...last} = Heat input rate from each fuel, in mmBtu/hr as determined using Equation F-19 or F-20 in section 5.5 of appendix F to this part, mmBtu/hr.

t_{1,2,3,...last} = Fuel usage time for each fuel (rounded up to the nearest fraction of an hour (in equal increments that can range from one hundredth to one quarter of an hour, at the option of the owner or operator)).

* * * * *

3.3 * * *

3.3.1 Conversion from Concentration to Emission Rate

Convert the NO_x concentrations (ppm) and O₂ concentrations to NO_x emission rates (to the nearest 0.01 lb/mmBtu for tests performed prior to April 1, 2000, or to the nearest 0.001 lb/mmBtu for tests performed on and after April 1, 2000), according to the appropriate one of the following equations: F-5 in appendix F to this part for dry basis concentration measurements or 19-3 in Method 19 of appendix A to part 60 of this chapter for wet basis concentration measurements.

* * * * *

3.3.4 Average NO_x Emission Rate During Co-firing of Fuels

$$E_h = \frac{\sum_{f=1}^{\text{all fuels}} (E_f \times HI_f t_f)}{H_T} \quad (\text{Eq. E-2})$$

where:

E_h = Hourly SO₂ mass emission rate during unit operation, lb/hr.

K = 1.660 × 10⁻⁷ for SO₂, (lb/scf)/ppm.

C_{hp} = Hourly average SO₂ concentration during unit operation, ppm (dry).

Q_{hs} = Hourly average volumetric flow rate during unit operation, scfh as measured (wet).

Where:

E_h = NO_x emission rate for the unit for the hour, lb/mmBtu.

E_f = NO_x emission rate for the unit for a given fuel at heat input rate HI_f, lb/mmBtu.

HI_f = Heat input rate for the hour for a given fuel, during the fuel usage time, as determined using Equation F-19 or F-20 in section 5.5 of appendix F to this part, mmBtu/hr.

H_T = Total heat input for all fuels for the hour from Equation E-1.

t_f = Fuel usage time for each fuel (rounded up to the nearest fraction of an hour (in equal increments that can range from one hundredth to one quarter of an hour, at the option of the owner or operator)).

Note: For hours where a fuel is combusted for only part of the hour, use the fuel flow rate or mass flow rate during the fuel usage time, instead of the total fuel flow or mass flow during the hour, when calculating heat input rate using Equation F-19 or F-20.

69. Appendix F to part 75 is amended by revising sections 2, 2.1, 2.2, 2.3, and 2.4 to read as follows:

Appendix F to Part 75—Conversion Procedures

* * * * *

2. Procedures for SO₂ Emissions

Use the following procedures to compute hourly SO₂ mass emission rate (in lb/hr) and quarterly and annual SO₂ total mass emissions (in tons). Use the procedures in Method 19 in appendix A to part 60 of this chapter to compute hourly SO₂ emission rates (in lb/mmBtu) for qualifying Phase I

technologies. When computing hourly SO₂ emission rate in lb/mmBtu, a minimum concentration of 5.0 percent CO₂ and a maximum concentration of 14.0 percent O₂ may be substituted for measured diluent gas concentration values at boilers during hours when the hourly average concentration of CO₂ is less than 5.0 percent CO₂ or the hourly average concentration of O₂ is greater than 14.0 percent O₂.

2.1 When measurements of SO₂ concentration and flow rate are on a wet basis, use the following equation to compute hourly SO₂ mass emission rate (in lb/hr):

$$E_h = K C_h Q_h \quad (\text{Eq. F-1})$$

Where:

E_h = Hourly SO₂ mass emission rate during unit operation, lb/hr.

K = 1.660 × 10⁻⁷ for SO₂, (lb/scf)/ppm.

C_h = Hourly average SO₂ concentration during unit operation, stack moisture basis, ppm.

Q_h = Hourly average volumetric flow rate during unit operation, stack moisture basis, scfh.

2.2 When measurements by the SO₂ pollutant concentration monitor are on a dry basis and the flow rate monitor measurements are on a wet basis, use the following equation to compute hourly SO₂ mass emission rate (in lb/hr):

$$E_h = K C_{hp} Q_{hs} \frac{(100 - \%H_2O)}{100} \quad (\text{Eq. F-2})$$

%H₂O = Hourly average stack moisture content during unit operation, percent by volume.

2.3 Use the following equations to calculate total SO₂ mass emissions for each calendar quarter (Equation F-3) and for each calendar year (Equation F-4), in tons:

$$E_q = \frac{\sum_{h=1}^n E_h t_h}{2000} \quad (\text{Eq. F-3})$$

Where:

E_q = Quarterly total SO₂ mass emissions, tons.

E_h = Hourly SO₂ mass emission rate, lb/hr.

t_h = Unit operating time, hour or fraction of an hour (in equal increments that can range from one hundredth to one quarter of an hour, at the option of the owner or operator).
 n = Number of hourly SO₂ emissions values during calendar quarter.
 2000 = Conversion of 2000 lb per ton.

$$E_a = \sum_{q=1}^4 E_q \quad (\text{Eq. F-4})$$

Where:

E_a = Annual total SO₂ mass emissions, tons.
 E_q = Quarterly SO₂ mass emissions, tons.
 q = Quarters for which E_q are available during calendar year.

2.4 Round all SO₂ mass emission rates and totals to the nearest tenth.

70. Appendix F to part 75 is further amended by revising sections 3.3.2, 3.3.3, 3.3.4, 3.4, and 3.5 to read as follows:

3. Procedures for NO_x Emission Rate

* * * * *

3.3 * * *

3.3.2 E = Pollutant emissions during unit operation, lb/mmBtu.

3.3.3 C_h = Hourly average pollutant concentration during unit operation, ppm.

3.3.4 %O₂, %CO₂ = Oxygen or carbon dioxide volume during unit operation (expressed as percent O₂ or CO₂). A minimum concentration of 5.0 percent CO₂ and a maximum concentration of 14.0 percent O₂ may be substituted for measured diluent gas concentration values at boilers during hours when the hourly average concentration of CO₂ is < 5.0 percent CO₂ or the hourly average concentration of O₂ is > 14.0 percent O₂. A minimum concentration of 1.0 percent CO₂ and a maximum concentration of 19.0 percent O₂ may be substituted for measured diluent gas concentration values at stationary gas turbines during hours when the hourly average concentration of CO₂ is < 1.0 percent CO₂ or the hourly average concentration of O₂ is > 19.0 percent O₂.

* * * * *

3.4 Use the following equations to calculate the average NO_x emission rate for each calendar quarter (Equation F-9) and the average emission rate for the calendar year (Equation F-10), in lb/mmBtu:

$$E_q = \sum_{i=1}^n \frac{E_i}{n} \quad (\text{Eq. F-9})$$

Where:

E_q = Quarterly average NO_x emission rate, lb/mmBtu.
 E_i = Hourly average NO_x emission rate during unit operation, lb/mmBtu.
 n = Number of hourly rates during calendar quarter.

$$E_a = \sum_{i=1}^m \frac{E_i}{m} \quad (\text{Eq. F-10})$$

Where:

E_a = Average NO_x emission rate for the calendar year, lb/mmBtu.
 E_i = Hourly average NO_x emission rate during unit operation, lb/mmBtu.
 m = Number of hourly rates for which E_i is available in the calendar year.

3.5 Round all NO_x emission rates to the nearest 0.01 lb/mmBtu prior to April 1, 2000, and to the nearest 0.001 lb/mmBtu on and after April 1, 2000.

71. Appendix F to part 75 is further amended by revising sections 4.1, 4.2, 4.3, 4.4, and 4.4.1 to read as follows:

4. Procedures for CO₂ Mass Emissions

* * * * *

4.1 When CO₂ concentration is measured on a wet basis, use the following equation to calculate hourly CO₂ mass emissions rates (in tons/hr):

$$E_h = K C_h Q_h \quad (\text{Eq. F-11})$$

Where:

E_h = Hourly CO₂ mass emission rate during unit operation, tons/hr.
 $K = 5.7 \times 10^{-7}$ for CO₂, (tons/scf) /%CO₂.
 C_h = Hourly average CO₂ concentration during unit operation, wet basis, percent CO₂. For boilers, a minimum concentration of 5.0 percent CO₂ may be substituted for the measured concentration when the hourly average concentration of CO₂ is < 5.0 percent CO₂, provided that this minimum concentration of 5.0 percent CO₂ is also used in the calculation of heat input for that hour. For stationary gas turbines, a minimum concentration of 1.0 percent CO₂ may be substituted for measured diluent gas concentration values during hours when the hourly average concentration of CO₂ is < 1.0 percent CO₂, provided that this minimum concentration of 1.0 percent CO₂ is also used in the calculation of heat input for that hour.

Q_h = Hourly average volumetric flow rate during unit operation, wet basis, scfh.

$$CO_{2d} = 100 \frac{F_c}{F} \frac{20.9 - O_{2d}}{20.9} \quad (\text{Eq. F-14a})$$

4.2 When CO₂ concentration is measured on a dry basis, use Equation F-2 to calculate the hourly CO₂ mass emission rate (in tons/hr) with a K -value of 5.7×10^{-7} (tons/scf) percent CO₂, where E_h = hourly CO₂ mass emission rate, tons/hr and C_{hp} = hourly average CO₂ concentration in flue, dry basis, percent CO₂.

4.3 Use the following equations to calculate total CO₂ mass emissions for each calendar quarter (Equation F-12) and for each calendar year (Equation F-13):

$$E_{CO_{2q}} = \sum_{h=1}^{H_R} E_h t_h \quad (\text{Eq. F-12})$$

Where:

$E_{CO_{2q}}$ = Quarterly total CO₂ mass emissions, tons.

E_h = Hourly CO₂ mass emission rate, tons/hr.
 t_h = Unit operating time, in hours or fraction of an hour (in equal increments that can range from one hundredth to one quarter of an hour, at the option of the owner or operator).

H_R = Number of hourly CO₂ mass emission rates available during calendar quarter.

$$E_{CO_{2a}} = \sum_{q=1}^4 E_{CO_{2q}} \quad (\text{Eq. F-13})$$

Where:

$E_{CO_{2a}}$ = Annual total CO₂ mass emission, tons.
 $E_{CO_{2q}}$ = Quarterly total CO₂ mass emissions, tons.

q = Quarters for which $E_{CO_{2q}}$ are available during calendar year.

4.4 For an affected unit, when the owner or operator is continuously monitoring O₂ concentration (in percent by volume) of flue gases using an O₂ monitor, use the equations and procedures in section 4.4.1 and 4.4.2 of this appendix to determine hourly CO₂ mass emissions (in tons).

4.4.1 Use appropriate F and F_c factors from section 3.3.5 of this appendix in one of the following equations (as applicable) to determine hourly average CO₂ concentration of flue gases (in percent by volume):

CO_{2d} = Hourly average CO₂ concentration during unit operation, percent by volume, dry basis.

F, F_c = F-factor or carbon-based F_c-factor from section 3.3.5 of this appendix.

20.9 = Percentage of O₂ in ambient air.

O_{2d} = Hourly average O₂ concentration during unit operation, percent by volume, dry basis. For boilers, a maximum concentration of 14.0 percent O₂ may be substituted for the measured concentration when the hourly average concentration of O₂ is > 14.0 percent O₂, provided that this maximum concentration of 14.0 percent O₂ is also used in the calculation of heat input for that hour. For stationary gas turbines, a maximum concentration of 19.0 percent O₂ may be substituted for measured diluent gas concentration values during hours when the hourly average concentration of O₂ is > 19.0 percent O₂, provided that this maximum concentration of 19.0 percent O₂ is also used in the calculation of heat input for that hour.

$$CO_{2w} = \frac{100}{20.9} \frac{F_c}{F} \left[20.9 \left(\frac{100 - \%H_2O}{100} \right) - O_{2w} \right] \quad (\text{Eq. F-14b})$$

Where:

CO_{2w} = Hourly average CO₂ concentration during unit operation, percent by volume, wet basis.

O_{2w} = Hourly average O₂ concentration during unit operation, percent by volume, wet basis. For boilers, a maximum concentration of 14.0 percent O₂ may be substituted for the measured concentration when the hourly average concentration of O₂ is > 14.0 percent O₂, provided that this maximum concentration of 14.0 percent O₂ is also used in the calculation of heat input for that hour. For stationary gas turbines, a maximum concentration of 19.0 percent O₂ may be substituted for measured diluent gas concentration values during hours when the hourly average concentration of O₂ is > 19.0 percent O₂, provided that this maximum concentration of 19.0 percent O₂ is also used in the calculation of heat input for that hour.

F, F_c = F-factor or carbon-based F_c-factor from section 3.3.5 of this appendix.

20.9 = Percentage of O₂ in ambient air.

%H₂O = Moisture content of gas in the stack, percent.

* * * * *

72. Appendix F to part 75 is amended by revising sections 5 through 5.2.4; adding sections 5.3 through 5.3.2; revising sections

5.5, 5.5.1 and 5.5.2; and by adding new sections 5.6 through 5.6.2 and 5.7 and by removing and revising section 5.4 to read as follows:

5. Procedures for Heat Input

Use the following procedures to compute heat input rate to an affected unit (in mmBtu/hr or mmBtu/day):

5.1 Calculate and record heat input rate to an affected unit on an hourly basis, except as provided in sections 5.5 through 5.5.7. The owner or operator may choose to use the provisions specified in § 75.16(e) or in section 2.1.2 of appendix D to this part in conjunction with the procedures provided in sections 5.6 through 5.6.2 to apportion heat input among each unit using the common stack or common pipe header.

5.2 For an affected unit that has a flow monitor (or approved alternate monitoring system under subpart E of this part for measuring volumetric flow rate) and a diluent gas (O₂ or CO₂) monitor, use the recorded data from these monitors and one of the following equations to calculate hourly heat input rate (in mmBtu/hr).

5.2.1 When measurements of CO₂ concentration are on a wet basis, use the following equation:

$$HI = Q_h \left[\frac{(100 - \%H_2O)}{100F_c} \right] \left(\frac{\%CO_{2d}}{100} \right) \quad (\text{Eq. F-16})$$

$$HI = Q_w \frac{1}{F_c} \frac{\%CO_{2w}}{100} \quad (\text{Eq. F-15})$$

Where:

HI = Hourly heat input rate during unit operation, mmBtu/hr.

Q_w = Hourly average volumetric flow rate during unit operation, wet basis, scfh.

F_c = Carbon-based F-factor, listed in section 3.3.5 of this appendix for each fuel, scf/mmBtu.

%CO_{2w} = Hourly concentration of CO₂ during unit operation, percent CO₂ wet basis.

For boilers, a minimum concentration of 5.0 percent CO₂ may be substituted for the measured concentration when the hourly average concentration of CO₂ is < 5.0 percent CO₂, provided that this minimum concentration of 5.0 percent CO₂ is also used in the calculation of CO₂ mass emissions for that hour. For stationary gas turbines, a minimum concentration of 1.0 percent CO₂ may be substituted for measured diluent gas concentration values during hours when the hourly average concentration of CO₂ is < 1.0 percent CO₂, provided that this minimum concentration of 1.0 percent CO₂ is also used in the calculation of CO₂ mass emissions for that hour.

5.2.2 When measurements of CO₂ concentration are on a dry basis, use the following equation:

Where:

HI = Hourly heat input rate during unit operation, mmBtu/hr.

Q_h = Hourly average volumetric flow rate during unit operation, wet basis, scfh.

F_c = Carbon-based F-Factor, listed in section 3.3.5 of this appendix for each fuel, scf/mmBtu.

$\%CO_{2d}$ = Hourly concentration of CO_2 during unit operation, percent CO_2 dry basis. For boilers, a minimum concentration of 5.0 percent CO_2 may be substituted for the measured concentration when the hourly average concentration of CO_2 is < 5.0 percent CO_2 , provided that this minimum concentration of 5.0 percent CO_2 is also used in the calculation of CO_2 mass emissions for that hour. For stationary gas turbines, a minimum concentration of 1.0 percent CO_2 may be substituted for measured diluent gas concentration values during hours when the hourly average concentration of CO_2 is < 1.0 percent CO_2 , provided that this minimum concentration of 1.0 percent CO_2 is also used in the calculation of CO_2 mass emissions for that hour.

$\%H_2O$ = Moisture content of gas in the stack, percent.

5.2.3 When measurements of O_2 concentration are on a wet basis, use the following equation:

$$HI = Q_w \frac{1}{F} \frac{[(20.9/100)(100 - \%H_2O) - \%O_{2w}]}{20.9} \quad (\text{Eq. F-17})$$

Where:

HI = Hourly heat input rate during unit operation, mmBtu/hr.

Q_w = Hourly average volumetric flow rate during unit operation, wet basis, scfh.

F = Dry basis F-factor, listed in section 3.3.5 of this appendix for each fuel, dscf/mmBtu.

$\%O_{2w}$ = Hourly concentration of O_2 during unit operation, percent O_2 wet basis. For boilers, a maximum concentration of 14.0 percent O_2 may be substituted for the measured concentration when the hourly average concentration of O_2 is > 14.0 percent O_2 , provided that this maximum concentration of 14.0 percent O_2 is also used in the calculation of CO_2 mass emissions for that hour. For stationary gas turbines, a maximum concentration of 19.0 percent O_2 may be substituted for measured diluent gas concentration values during hours when the hourly average concentration of O_2 is > 19.0 percent O_2 , provided that this maximum concentration of 19.0 percent O_2 is also used in the calculation of CO_2 mass emissions for that hour.

$\%H_2O$ = Hourly average stack moisture content, percent by volume.

5.2.4 When measurements of O_2 concentration are on a dry basis, use the following equation:

$$HI = Q_w \left[\frac{(100 - \%H_2O)}{100 F} \right] \left[\frac{(20.9 - \%O_{2d})}{20.9} \right] \quad (\text{Eq. F-18})$$

Where:

HI = Hourly heat input rate during unit operation, mmBtu/hr.

Q_w = Hourly average volumetric flow during unit operation, wet basis, scfh.

F = Dry basis F-factor, listed in section 3.3.5 of this appendix for each fuel, dscf/mmBtu.

%H₂O = Moisture content of the stack gas, percent.

%O_{2d} = Hourly concentration of O₂ during unit operation, percent O₂ dry basis. For boilers, a maximum concentration of 14.0 percent O₂ may be substituted for the measured concentration when the hourly average concentration of O₂ is > 14.0 percent O₂, provided that this maximum concentration of 14.0 percent O₂ is also used in the calculation of CO₂ mass emissions for that hour. For stationary gas turbines, a maximum concentration of 19.0 percent O₂ may be substituted for measured diluent gas concentration values during hours when the hourly average concentration of O₂ is > 19.0 percent O₂, provided that this maximum concentration of 19.0 percent O₂ is also used in the calculation of CO₂ mass emissions for that hour.

5.3 Heat Input Summation (for Heat Input Determined Using a Flow Monitor and Diluent Monitor)

5.3.1 Calculate total quarterly heat input for a unit or common stack using a flow monitor and diluent monitor to calculate heat input, using the following equation:

$$HI_q = \sum_{\text{hour}=1}^n HI_i t_i \quad (\text{Eq. F-18a})$$

Where:

HI_q = Total heat input for the quarter, mmBtu.

HI_i = Hourly heat input rate during unit operation, using Equation F-15, F-16, F-17, or F-18, mmBtu/hr.

t_i = Hourly operating time for the unit or common stack, hour or fraction of an hour (in equal increments that can range from one hundredth to one quarter of an hour, at the option of the owner or operator).

5.3.2 Calculate total cumulative heat input for a unit or common stack using a flow monitor and diluent monitor to calculate heat input, using the following equation:

$$HI_c = \sum_{q=1}^{\text{the current quarter}} HI_q \quad (\text{Eq. F-18b})$$

Where:

HI_c = Total heat input for the year to date, mmBtu.

HI_q = Total heat input for the quarter, mmBtu.

5.4 [Reserved]

5.5 For a gas-fired or oil-fired unit that does not have a flow monitor and is using the procedures specified in appendix D to this part to monitor SO₂ emissions or for any unit using a common stack for which the owner or operator chooses to determine heat input by fuel sampling and analysis, use the following procedures to calculate hourly heat input rate in mmBtu/hr. The procedures of section 5.5.3 of this appendix shall not be used to determine heat input from a coal unit that is required to comply with the provisions of this part for monitoring, recording, and reporting NO_x mass emissions under a State or federal NO_x mass emission reduction program.

5.5.1(a) When the unit is combusting oil, use the following equation to calculate hourly heat input rate:

$$HI_o = M_o \frac{GCV_o}{10^6} \quad (\text{Eq. F-19})$$

Where:

HI_o = Hourly heat input rate from oil, mmBtu/hr.

M_o = Mass rate of oil consumed per hour, as determined using procedures in appendix D to this part, in lb/hr, tons/hr, or kg/hr.

GCV_o = Gross calorific value of oil, as measured by ASTM D240-87 (Reapproved 1991), ASTM D2015-91, or ASTM D2382-88 for each oil sample under section 2.2 of appendix D to this part, Btu/unit mass (incorporated by reference under § 75.6).

10⁶ = Conversion of Btu to mmBtu.

(b) When performing oil sampling and analysis solely for the purpose of the missing

data procedures in § 75.36, oil samples for measuring GCV may be taken weekly, and the procedures specified in appendix D to this part for determining the mass rate of oil consumed per hour are optional.

5.5.2 When the unit is combusting gaseous fuels, use the following equation to calculate heat input rate from gaseous fuels for each hour:

$$HI_g = \frac{(Q_g \times GCV_g)}{10^6} \quad (\text{Eq. F-20})$$

Where:

HI_g = Hourly heat input rate from gaseous fuel, mmBtu/hour.

Q_g = Metered flow rate of gaseous fuel combusted during unit operation, hundred cubic feet.

GCV_g = Gross calorific value of gaseous fuel, as determined by sampling (for each delivery for gaseous fuel in lots, for each daily gas sample for gaseous fuel delivered by pipeline, for each hourly average for gas measured hourly with a gas chromatograph, or for each monthly sample of pipeline natural gas, or as verified by the contractual supplier at least once every month pipeline natural gas is combusted, as specified in section 2.3 of appendix D to this part) using ASTM D1826-88, ASTM D3588-91, ASTM D4891-89, GPA Standard 2172-86 "Calculation of Gross Heating Value, Relative Density and Compressibility Factor for Natural Gas Mixtures from Compositional Analysis," or GPA Standard 2261-90 "Analysis for Natural Gas and Similar Gaseous Mixtures by Gas Chromatography," Btu/100 scf (incorporated by reference under § 75.6).

10⁶ = Conversion of Btu to mmBtu.

* * * * *

5.6 Heat Input Rate Apportionment for Units Sharing a Common Stack or Pipe

5.6.1 Where applicable, the owner or operator of an affected unit that determines heat input rate at the unit level by apportioning the heat input monitored at a common stack or common pipe using megawatts should apportion the heat input rate using the following equation:

$$HI_i = HI_{CS} \left(\frac{t_{CS}}{t_i} \right) \left[\frac{MW_i t_i}{\sum_{i=1}^n MW_i t_i} \right] \quad (\text{Eq. F-21a})$$

Where:

HI_i = Heat input rate for a unit, mmBtu/hr.

HI_{CS} = Heat input rate at the common stack or pipe, mmBtu/hr.

MW_i = Gross electrical output, MWe.

t_i = Operating time at a particular unit, hour or fraction of an hour (in equal increments that can range from one hundredth to one quarter of an hour, at the option of the owner or operator).

t_{CS} = Operating time at common stack, hour or fraction of an hour (in equal increments that can range from one hundredth to one quarter of an hour, at the option of the owner or operator).

n = Total number of units using the common stack.

i = Designation of a particular unit.

5.6.2 Where applicable, the owner or operator of an affected unit that determines the heat input rate at the unit level by

apportioning the heat input rate monitored at a common stack or common pipe using steam

load should apportion the heat input rate using the following equation:

$$HI_i = HI_{CS} \left(\frac{t_{CS}}{t_i} \right) \left[\frac{SF_i t_i}{\sum_{i=1}^n SF_i t_i} \right] \quad (\text{Eq. F-21b})$$

Where:

HI_i = Heat input rate for a unit, mmBtu/hr.

HI_{CS} = Heat input rate at the common stack or pipe, mmBtu/hr.

SF = Gross steam load, lb/hr.

t_i = Operating time at a particular unit, hour or fraction of an hour (in equal increments that can range from one hundredth to one quarter of an hour, at the option of the owner or operator).

t_{CS} = Operating time at common stack, hour or fraction of an hour (in equal increments that can range from one hundredth to one quarter of an hour, at the option of the owner or operator).

n = Total number of units using the common stack.

i = Designation of a particular unit.

5.7 Heat Input Rate Summation for Units with Multiple Stacks or Pipes

The owner or operator of an affected unit that determines the heat input rate at the unit level by summing the heat input rates monitored at multiple stacks or multiple pipes should sum the heat input rates using the following equation:

$$HI_{Unit} = \frac{\sum_{s=1}^n HI_s t_s}{t_{Unit}} \quad (\text{Eq. F-21c})$$

Where:

HI_{Unit} = Heat input rate for a unit, mmBtu/hr.

HI_s = Heat input rate for each stack or duct leading from the unit, mmBtu/hr.

t_{Unit} = Operating time for the unit, hour or fraction of the hour (in equal increments that can range from one hundredth to one quarter of an hour, at the option of the owner or operator).

t_s = Operating time during which the unit is exhausting through the stack or duct, hour or fraction of the hour (in equal increments that can range from one hundredth to one quarter of an hour, at the option of the owner or operator).

73. Appendix F is further amended by revising section 7 to read as follows:

7. Procedures for SO_2 Mass Emissions at Units With SO_2 Continuous Emission Monitoring Systems During the Combustion of Pipeline Natural Gas or Natural Gas

The owner or operator shall use the following equation to calculate hourly SO_2 mass emissions as allowed for units with SO_2 continuous emission monitoring systems if, during the combustion of gaseous fuel that meets the definition of pipeline natural gas

or natural gas in § 72.2 of this chapter, SO_2 emissions are determined in accordance with § 75.11(e)(1).

$$E_h = (ER) (HI) \quad (\text{Eq. F-23})$$

Where:

E_h = Hourly SO_2 mass emissions, lb/hr.

ER = Applicable SO_2 default emission rate from section 2.3.1.1 or 2.3.2.1.1 of appendix D to this part, lb/mmBtu.

HI = Hourly heat input, as determined using the procedures of section 5.2 of this appendix.

74. Appendix F is further amended by correcting section 8 to read as follows:

8. Procedures for NO_x Mass Emissions

The owner or operator of a unit that is required to monitor, record, and report NO_x mass emissions under a State or federal NO_x mass emission reduction program must use the procedures in section 8.1, 8.2, or 8.3, as applicable, to account for hourly NO_x mass emissions, and the procedures in section 8.4 to account for quarterly, seasonal, and annual NO_x mass emissions to the extent that the provisions of subpart H of this part are adopted as requirements under such a program.

75. Appendix G to part 75 is amended by revising the paragraph defining the term " W_c " that follows Equation G-1 and by revising the paragraph defining the term " F_c " that follows Equation G-4 to read as follows:

Appendix G to Part 75—Determination of CO_2 Emissions

* * * * *

2. Procedures for Estimating CO_2 Emissions From Combustion

* * * * *

2.1 * * *

(Eq. G-1)

Where:

* * * * *

W_c = Carbon burned, lb/day, determined using fuel sampling and analysis and fuel feed rates. Collect at least one fuel sample during each week that the unit combusts coal, one sample per each shipment or delivery for oil and diesel fuel, one fuel sample for each delivery for gaseous fuel in lots, one sample per day or per hour (as applicable) for each gaseous fuel that is required to be sampled daily or hourly for gross calorific value under section 2.3.5.6 of appendix D to this part, and one sample per month for each gaseous fuel that is required to be sampled monthly for gross calorific value under section 2.3.4.1 or 2.3.4.2 of appendix D to this part. Collect coal samples from a location in the fuel handling system that provides a sample representative of the fuel bunkered or consumed during the week. Determine the carbon content of each fuel sampling using one of the following methods: ASTM D3178-89 or ASTM D5373-93 for coal; ASTM D5291-92 "Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants," ultimate analysis of oil, or computations based upon ASTM D3238-90 and either ASTM D2502-87 or ASTM D2503-82 (Reapproved 1987) for oil; and computations based on ASTM D1945-91 or ASTM D1946-90 for gas. Use daily fuel feed rates from company records for all fuels and the carbon content of the most recent fuel sample under this section to determine tons of carbon per day from combustion of each fuel. (All ASTM methods are incorporated by reference under § 75.6.) Where more than one fuel is combusted during a calendar day, calculate total tons of carbon for the day from all fuels.

* * * * *

2.3 * * *

(Eq. G-4)

Where:

* * * * *

F_c = Carbon based F-factor, 1040 scf/mmBtu for natural gas; 1,240 scf/mmBtu for crude, residual, or distillate oil; and calculated according to the procedures in section 3.3.5 of appendix F to this part for other gaseous fuels.

* * * * *

76. Appendix G to part 75 is amended by adding new sections 5 through 5.3 to read as follows:

5. Missing Data Substitution Procedures for Fuel Analytical Data

Use the following procedures to substitute for missing fuel analytical data used to calculate CO₂ mass emissions under this appendix.

5.1 Missing Carbon Content Data Prior to 4/1/2000

Prior to April 1, 2000, follow either the procedures of this section or the procedures of section 5.2 of this appendix to substitute for missing carbon content data. On and after April 1, 2000, use the procedures of section 5.2 of this appendix to substitute for missing carbon content data, not the procedures of this section.

5.1.1 Most Recent Previous Data

Substitute the most recent, previous carbon content value available for that fuel type (gas, oil, or coal) of the same grade (for oil) or rank (for coal). To the extent practicable, use a carbon content value from the same fuel supply. Where no previous carbon content data are available for a particular fuel type or rank of coal, substitute the default carbon content from Table G-1 of this appendix.

5.1.2 [Reserved]

5.2 Missing Carbon Content Data On and After 4/1/2000

Prior to April 1, 2000, follow either the procedures of this section or the procedures of section 5.1 of this appendix to substitute for missing carbon content data. On and after April 1, 2000, use the procedures of this

section to substitute for missing carbon content data.

5.2.1 In all cases (i.e., for weekly coal samples or composite oil samples from continuous sampling, for oil samples taken from the storage tank after transfer of a new delivery of fuel, for as-delivered samples of oil, diesel fuel, or gaseous fuel delivered in lots, and for gaseous fuel that is supplied by a pipeline and sampled monthly, daily or hourly for gross calorific value) when carbon content data is missing, report the appropriate default value from Table G-1.

5.2.2 The missing data values in Table G-1 shall be reported whenever the results of a required sample of fuel carbon content are either missing or invalid. The substitute data value shall be used until the next valid carbon content sample is obtained.

TABLE G-1.—MISSING DATA SUBSTITUTION PROCEDURES FOR MISSING CARBON CONTENT DATA

Parameter	Sampling technique/frequency	Missing data value
Oil and coal carbon content	All oil and coal samples, prior to April 1, 2000	Most recent, previous carbon content value available for that grade of oil, or default value, in this table.
Gas carbon content	All gaseous fuel samples, prior to April 1, 2000.	Most recent, previous carbon content value available for that type of gaseous fuel, or default value, in this table.
Default coal carbon content	All, on and after April 1, 2000	Anthracite: 90.0 percent. Bituminous: 85.0 percent. Subbituminous/Lignite: 75.0 percent.
Default oil carbon content	All, on and after April 1, 2000	90.0 percent.
Default gas carbon content	All, on and after April 1, 2000	Natural gas: 75.0 percent. Other gaseous fuels: 90.0 percent.

5.3 Gross Calorific Value Data

For a gas-fired unit using the procedures of section 2.3 of this appendix to determine CO₂ emissions, substitute for missing gross calorific value data used to calculate heat input by following the missing data procedures for gross calorific value in section 2.4 of appendix D to this part.

Appendix H to Part 75—Revised Traceability Protocol No. 1

77. Appendix H to part 75 is removed and reserved.

Appendix J to Part 75—Compliance Dates for Revised Recordkeeping Requirements and Missing Data Procedures

78. Appendix J to part 75 is removed and reserved.

[FR Doc. 99-8939 Filed 5-25-99; 8:45 am]

BILLING CODE 6560-50-U